

## INFRARED AUDIO/VIDEO INTERFACE FOR HEAD-MOUNTED DISPLAY

Raymond T. Hebert  
Kevin R. Hempson

5

### ABSTRACT OF THE DISCLOSURE

A video interface linking a base station with a remote display, e.g., a head-mounted display, converts input video signals from NTSC or PAL formats into modulated video signals containing repetitive sequences of frame times with embedded audio and control signals. Each frame time includes equal consecutive color field times.

10 Frame rates are converted by inserting selected repeating color frames into the datastream. Bursts of image information occupy a portion of each field time. During each data burst, the display is loaded with pixel luminance data. Between bursts, the display is illuminated by a color LED. Two video displays can be driven alternately, i.e., the first display loads while the second is illuminated. The modulated video signal can  
15 travel through the atmosphere on an infrared (IR) beam with a wavelength between 700 nm and 1100 nm. In one embodiment, the beam is scattered from a diffuse reflecting surface. Alternatively, the beam is emitted from an array of infrared light emitting diodes (LEDs). Designs for collecting lens assemblies are described. Some embodiments include return audio transmission.

20

710009 v1